

Unless otherwise noted, the content of this course material is licensed under a Creative Commons Attribution 3.0 License.

Copyright 2008, University of Michigan.

The following information is intended to inform and educate and is not a tool for self-diagnosis or a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional. You should speak to your physician or make an appointment to be seen if you have questions or concerns about this information or your medical condition. You assume all responsibility for use and potential liability associated with any use of the material.

Material contains copyrighted content, used in accordance with U.S. law. Copyright holders of content included in this material should contact open.michigan@umich.edu with any questions, corrections, or clarifications regarding the use of content. The Regents of the University of Michigan do not license the use of third party content posted to this site unless such a license is specifically granted in connection with particular content objects. Users of content are responsible for their compliance with applicable law. Mention of specific products in this recording solely represents the opinion of the speaker and does not represent an endorsement by the University of Michigan.

Viewer discretion advised: Material may contain medical images that may be disturbing to some viewers.

General Information for the Renal Sequence 2007

Introduction and Broad Objectives

The major objective of this sequence is for the students to obtain integrated information regarding the structure and function of the renal system, mainly the kidney, by attending lectures and participating in laboratory exercises. By the end of the sequence, we hope that the students will have acquired a working knowledge of :

- 1) how the various structural components in the kidney are specialized for processing the filtrate and producing urine,
- 2) what homeostatic mechanisms are involved in the control and regulation of fluid, electrolyte and acid-base balance, and
- 3) how nitrogenous waste such as urea and uric acid are eliminated by metabolic processes.

Obviously, one reason for studying the normal structure and function is to obtain the knowledge that will provide a basis for understanding pathological changes and the physiological consequences of these changes. To this end, clinical problems related to various pathophysiological conditions in the renal system are dealt with in this sequence. The sequence also includes a multidisciplinary conference and a small group session which deals with clinical consequences in water/electrolyte balance and acid/base problems. More specific objectives and expected learning outcome for each lecture and lab in the subtopic areas will be provided in each session, or may be found in lecture handouts or in the sequence syllabus.

In addition to the topics directly related to the renal structures and functions, gross dissections of the abdominal region will be initiated. The anatomy of the abdominal wall and inguinal region will be dealt with in this sequence, preceding the dissection of the digestive organs in the following sequence. In order to preserve the spatial relationship of the various abdominal organs, especially the digestive organs, actual dissections of the kidneys and other urinary organs will be delayed until the GI sequence. Instead, the anatomy of the kidneys will be studied using plastinated organs in this sequence.

Small group Discussions (December 20, 11:00 AM)

This session will provide students with an opportunity to discuss, analyze, and interpret signs and symptoms as they relate to the underlying physiological principles learned. The purpose of this session is not to teach you how to diagnose specific diseases, but to provide practice in applying physiological principles to interpreting various pathophysiological states. The problem to be discussed, and questions you will be expected to consider during the discussion, will be provided prior to the discussion.

Failure to attend the MDC or small group sessions

In the Renal sequence there are two required experiences (in addition to Dr. Kumagai's FCE Lecture). In the **RARE** circumstance where a student cannot attend, the student must contact their class counselor in advance (or as soon as possible in an emergency) to request a deferral. (Please do NOT contact sequence directors with requests for or explanations of deferrals.) Absences will be approved or denied by class counselors based on the same guidelines used for Quiz and Exam deferrals. Should you obtain a deferral from your class counselor, make up instructions for the required experiences (found below) should be followed.

For the Required Patient Presentation on 12/19, the remediation will be watching the video and a 2-page response paper describing the patient presentation. This is due to Dr. Kim by 5 PM on 12/21/07.

For the Physiology Small Groups, the remediation will be writing answers to the small group question. This is due to Dr. Kim by 5 PM on 12/21/07.

Recommended Texts:

There are several high quality texts. Students are encouraged to select one of the following:

Vander, Human Physiology
10th edition (2006), **chapters 1, 14**

Ganong, Review of Medical Physiology
22nd edition (2005), **chapters 38 & 39**

Hall and Guyton, Medical Physiology
11th edition (2005), **chapters 1, 25-31**

Select Review Articles from New England Journal of Medicine – links will be posted

Sequence Examination and Grading

Performance will be assessed by one quiz at the end of the first week and a comprehensive final examination. The final exam will include both online written and gross anatomy lab practical portions. The practical final exam will take place in the gross laboratories in the afternoon of December 21 (Friday). The online written portion of the final examination will open at 5:00 PM on Thursday (12/20) and will close at 11:59PM on Sunday (12/23). The number of quiz and exam questions will be approximately proportional to the time allocated for lectures and laboratory hours. All exam questions weigh equally and are worth one point. To pass the sequence, students must achieve a minimum score of **75%** and fulfill the responsibilities to the Small Group Exercise, Multidisciplinary Conference and Longitudinal Case.

Renal Sequence Lecturers and Faculty Contacts

Sequence Coordinator :	Sun-Kee Kim, Ph.D. Cell and Developmental Biology
Physiology:	Joan Keiser, Ph.D. Department of Molecular and Integrative Physiology
Biochemistry:	Robert Lyons, Ph.D. Department of Biological Chemistry
Gross Anatomy:	Thomas Gest, Ph.D. Anatomical Sciences
Histology:	J. Matthew Velkey, Ph.D. Lecture: Michael Hortsch, Ph.D. Laboratory: Histology Teaching Staff Cell and Developmental Biology
MDC:	Rachel Perlman, M.D. Internal Medicine - Nephrology
Clinical Lecture:	Richard E. Burney, M.D. Department of Surgery - General Surgery
Staff Support:	Sara J. Weir